



Data Sheet

Vibrating Reed Frequency Meter

FQ



Measure



Control



Record



Analyze



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Application

The reed type frequency meters, FQ 72 / 96 housed in moulded polycarbonate cases are suitable for the measurement of frequencies in the range of 45 to 65 Hz.

These instruments offer several advantages in switchboard and Generating Set Panels. Number of meters can be mounted in a single Cut out (Mosaic mounting). Front glass, Bezel & Dial can be easily replaced.

Features

- Glass filled polycarbonate housing (UL 94 V-0).
- Easily replacement of glass and bezel.
- Easy installation with swivel screws.

Functional Principle

Vibrating reed type frequency meter is a mechanical resonance type frequency meter which consists of an electromagnet and reeds. This movement consists of a number of thin steel strips called reeds fixed on a steel plate. These reeds are placed in a row close to an electromagnet as shown in Figure 1. The coil of an electromagnet is connected across the supply, whose frequency is to be measured, along with a series resistance, mounted on the backside of the instrument.

Specifications

Mechanical Data

Case details	:	Moulded square case suitable for mounting in Control / Switchgear panels. Machinery consoles.
Case material	:	Glass filled polycarbonate, flame retardant and drip proof as per UL 94 V-0.
Front facia	:	Glass
Colour of bezel	:	Black
Position of use	:	Vertical
Panel fixing	:	Swivel Screws
Mounting	:	Stackable in single cut out
Panel thickness	:	≤ 25 mm
Terminals	:	Hexagon studs, M4 screws And wire clamps E3
Mechanical properties	:	VDE 0411, Part 1 Claus 43/44

Electrical Data

Measured quantity	:	Frequency
Input quantity	:	Alternating voltage in sine waveform
Overload capacity	:	(acc. to IS: 1248 / IEC 51)
Continuously	:	1.2 times rated voltage
Short duration	:	2 times rated voltage, 5 sec
Protection against ingress of foreign bodies	:	IEC 529 (DIN 40050)

Enclosure code (IEC 529)	:	IP 52 case IP 00 for terminals without back cover IP 20 for terminals with back cover
Insulation class	:	Group A according to VDE 0110
Rated insulation voltage	:	660V
Proof voltage	:	2KV
Installation category	:	300V CAT III
Insulation resistance	:	> 50 Mohm at 500 V d.c
Power consumption	:	≤ 5VA

Standard Measuring Ranges

Frequency Range	:	45.....50.....55 Hz 47.....50.....53 Hz
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Rated input voltage	:	110 V 220 V 230 V 240 V 400 V 415 V 440 V
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Accuracy at Reference Conditions

Accuracy class	:	0.5 according to IS: 1248 (IEC 51/ DIN EN 60051)
Reference conditions	:	
Ambient temperature	:	23°C ± 2°C
Position of use	:	Nominal position ± 1°
Input	:	Rated Voltage ± 2%
Other conditions	:	IS : 1248 (IEC 51/ DIN EN 60051)
Nominal range of use	:	
Ambient temperature	:	0...50°C
Position of use	:	Nominal position ± 5°C
External magnetic field	:	0.5 mT
Voltage	:	Rated Voltage ± 15 %

Environmental Conditions

Climatic suitability	:	Climate category II as per IS:1248,9000 (climatic class 3 according to VDE/VDI 3540)
Operating temperature	:	- 10... + 55°C
Storage temperature	:	- 25... + 65°C
Relative humidity	:	± 75% annual average, non-condensing
Shock resistance	:	15g, 11ms
Vibration resistance	:	10-55-10 Hz / 0.15mm 1.5 g at about 50 Hz.
Pollution degree	:	2

Options

Case	:	
Front facia	:	Antiglare glass
Colour of bezel	:	Red, Yellow, Blue, White.
Position of use	:	on request 0180°



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Applicable Standards

Specifications for direct acting indicating analogue electrical instruments & their accessories. : IS 1248, IEC 51

Dimensions for panel mounted indicating & recording electrical measuring instruments : IS 2419
: DIN 43700

Front frames for indicating measuring instruments : DIN 43718

Safety requirements for indicating and recording electrical measuring instruments : IS 9249
VDE 0410 - 10.76
VDE 0106

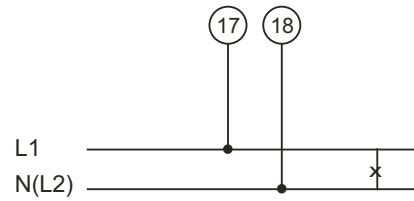
Degrees of protection provided by the enclosures for electrical instruments : IEC 529,
DIN 40050, VDE 0411

Climate class; determination and testing : IS 1248, IS 9000
VDE / VDI 3540

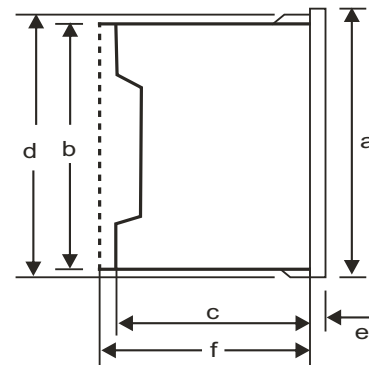
Electrical panel mounting measuring instruments; terms of delivery. : DIN 43701

UL Combustibility Class : UL 94 V-0

Connections



Dimensions



Safety Terminal Protection

Full sized polycarbonate back cover to provide protection against accidental contact (hand and fingers) acc.to IS 9249, VDE 0410.

Safety Precautions

- Instruments with damaged bezels or window glasses must be disconnected from mains.
- Adequate safety clearance must be maintained to control panel fasteners and to sheet metal housing, if non - insulated connector wires are used.
- The back cover must be snapped into place after the connector wires have been clamped for protection against accidental contact.
- Scales should be replaced under Voltage- free conditions.
- Bezels and window glasses should be replaced under Voltage - free conditions.

Dimensions (in mm)		FQ 72	FQ 96
Bezel	a	☐ 72	☐ 96
Case	b	☐ 66	☐ 90
Depth	c*	☐ 53	☐ 53
	d	☐ 67.5	☐ 91.5
	e	5.5	5.5
Cutout Size		☐ 68 ^{+0.7}	☐ 92 ^{+0.8}
Depth with Back cover	f**	64	64
Weight (approx.)		0.21 kg.	0.28 kg.



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Ordering Information

Type FQ	Pointer type frequency meter
Front dimension 72, 96	72 mm x 72 mm 96 mm x 96 mm
Measuring Ranges	Refer to table inside
Terminal protection	full sized polycarbonate backcover
Front Facia	Normal glass ^{*1} , PC glass ^{*3} , Antiglare glass ^{*3}
Colour of Bezel	Black ^{*1} Red, Blue, Yellow, White ^{*3}
Position of use	Vertical ^{*1} On request 0 180° ^{*3}
Logo	RISHABH ^{*1} , Others ^{*3}

*1 Standard

*3 Please clearly add the desired specifications while ordering

Ordering Example

FQ 96 Measuring range 45....50....55 Hz, rated voltage AC 230V

Specifications are subject to change without notice(11/11)



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